

J/SST108 SERIES

LOW NOISE SINGLE N-CHANNEL JFET SWITCH

FEATURES

Direct Replacement for Siliconix J/SST: 108, 109, 110, & 110A

LOW ON RESISTANCE $r_{DS(on)} \leq 8\Omega$

FAST SWITCHING $t_{ON} \leq 4ns$

ABSOLUTE MAXIMUM RATINGS¹

@ 25 °C (unless otherwise stated)

Maximum Temperatures

Storage Temperature -55 to 150°C

Junction Operating Temperature -55 to 150°C

Maximum Power Dissipation

Continuous Power Dissipation 350mW

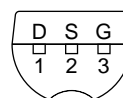
Maximum Currents

Gate Current 50mA

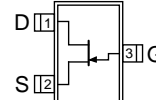
Maximum Voltages

Gate to Drain or Source -25V

J SERIES
TO-92
BOTTOM VIEW



SST SERIES
SOT-23
TOP VIEW



STATIC ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)

| SYM. | CHARACTERISTIC | TYP | J/SST108 | | J/SST109 | | J/SST110 | | UNIT | CONDITIONS |
|----------------------|---|---------------|----------|-----|----------|-----|----------|-----|------|--|
| | | | MIN | MAX | MIN | MAX | MIN | MAX | | |
| BV _{GSS} | Gate to Source Breakdown Voltage | | -25 | | -25 | | -25 | | V | I _G = -1μA, V _{DS} = 0V |
| V _{GS(off)} | Gate to Source Cutoff Voltage | | -3 | -10 | -2 | -6 | -0.5 | -4 | | V _{DS} = 5V, I _D = 1μA |
| V _{GS(F)} | Gate to Source Forward Voltage | 0.7 | | | | | | | | I _G = 1mA, V _{DS} = 0V |
| I _{DSS} | Drain to Source Saturation Current ² | | 80 | | 40 | | 10 | | mA | V _{DS} = 15V, V _{GS} = 0V |
| I _{GSS} | Gate Leakage Current | -0.01 | | -3 | | -3 | | -3 | | V _{GS} = -15V, V _{DS} = 0V |
| I _G | Gate Operating Current | -0.01 | | | | | | | | V _{DG} = 10V, I _D = 10mA |
| I _{D(off)} | Drain Cutoff Current | 0.02 | | 3 | | 3 | | 3 | | V _{DS} = 5V, V _{GS} = -10V |
| r _{DS(on)} | Drain to Source On Resistance | 108, 109, 110 | | 8 | | 12 | | 18 | Ω | V _{GS} = 0V, V _{DS} ≤ 0.1V |
| | | 110A | | | | | | 25 | | |

DYNAMIC ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)

| SYM. | CHARACTERISTIC | TYP | J/SST108 | | J/SST109 | | J/SST110 | | UNIT | CONDITIONS |
|---------------------|--------------------------------|-----|----------|-----|----------|-----|----------|-----|--------|--|
| | | | MIN | MAX | MIN | MAX | MIN | MAX | | |
| g _{fs} | Forward Transconductance | 17 | | | | | | | mS | V _{DS} = 5V, I _D = 10mA f = 1kHz |
| g _{os} | Output Conductance | 0.6 | | | | | | | | |
| r _{ds(on)} | Drain to Source On Resistance | | | 8 | | 12 | | 18 | Ω | V _{GS} = 0V, I _D = 0A f = 1kHz |
| C _{iss} | Input Capacitance | SST | 60 | | | | | | pF | V _{DS} = 0V, V _{GS} = 0V f = 1MHz |
| | | J | 60 | 85 | | 85 | | 85 | | |
| C _{rss} | Reverse Transfer Capacitance | SST | 11 | | | | | | | V _{DS} = 0V, V _{GS} = -10V f = 1MHz |
| | | J | 11 | 15 | | 15 | | 15 | | |
| e _n | Equivalent Input Noise Voltage | 3.5 | | | | | | | nV/√Hz | V _{DS} = 5V, I _D = 10mA f = 1kHz |

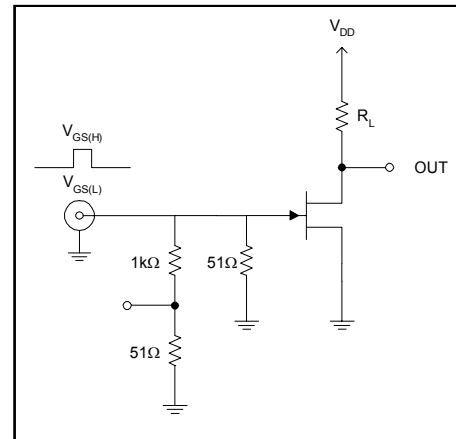
SWITCHING CHARACTERISTICS

| SYM. | CHARACTERISTIC | TYP | UNIT | CONDITIONS |
|--------------|----------------|-----|------|-------------------------------------|
| $t_{d(on)}$ | Turn On Time | 3 | ns | $V_{DD} = 1.5V$ $V_{GS(H)} = 0V$ |
| t_r | | 1 | | |
| $t_{d(off)}$ | Turn Off Time | 4 | | |
| t_f | | 18 | | |

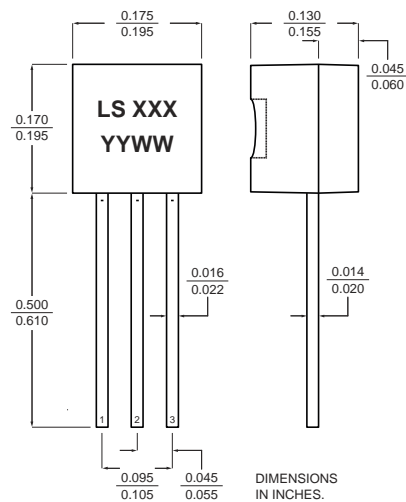
SWITCHING CIRCUIT CHARACTERISTICS

| SYM. | J/SST108 | J/SST109 | J/SST110 |
|-------------|--------------|--------------|--------------|
| $V_{GS(L)}$ | -12V | -7V | -5V |
| R_L | 150 Ω | 150 Ω | 150 Ω |
| $I_{D(on)}$ | 10mA | 10mA | 10mA |

SWITCHING TEST CIRCUIT

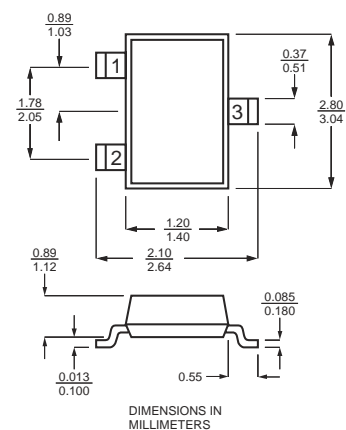


TO-92



DIMENSIONS
IN INCHES.

SOT-23



DIMENSIONS IN
MILLIMETERS

NOTES

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse test: $PW \leq 300\mu s$, Duty Cycle $\leq 3\%$

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